QC

Quality Control

October-07-13 9:06:40 AM Item ID: D3016-041 Accept *N900040100* Setup Start **Revision ID:** Item Name: Seat Frame Assembly 10/07/13 Start Qty: 1.00 **Start Date: Cust Item ID:** Required Date: 10/07/13 **Req'd Qty:** 1.00 **Customer:** Reference: Run Process Plan: MLJ Date: 13-10-08 Tooling: Date: Approvals: Stop QC: Date: SPC (Y/N): Date: Sequence ID/ **Operation** Tool ID Reject Tool # Plan Accept Reject Insp. Set Up/ Stamp Work Center ID **Description** Code **Qty Qty Run Hours** Number **Revision Nbr Draw Nbr** D3016 RevA / DEO A-1 Weld per dwg A/R 4130 rod Batch: 1/18875 0.00 100 Large Fab *100* 1 @ 13-11-20 0.00 Large Fab Memo 1-Cut all tubes as per Dwg D3016 Large Fab 2-Deburr 3-Assemble tubes, fittings and weld as per Dwg D3016 using welding jig DT8597 4-Transfer drill holes from D3017-041 and D3021-041 in seat frame D3016-041 5- Assemble brackets and gusset per dwg and weld QC9- Inspect visual per QSI004- Fusion Welds 0.00 110 *110* 16-11-21 O

0.00

Memo

							,		_		DQA:	Date:			
NCR: Y	'es / .	No				WORK ORDER NON-C	CON	FORN	MANCE / UPI		QA Closed:	Date:			
Work Orde	er:				,	DISPOSITION		AGAINST DEPARTMENT/PROCESS							
Part No. NCR No.						Rework Scrap Use-as-is Work Order Update		Therm	Skid-tube Machining noforming Large Fab	Crosstube Small Fab Finishing Composite		Water Jet J. Eng. Coor. e/Packaging Supplier	Engineering Quality Other		
Root					Descri	ption of work order update	In	itial	Act	tion	Sign &				
Cause	Da	ate	Step	Qty	. (or Non-conformance	Chie	ef Eng	Desci	ription	Date	Verification	QC Inspector		
Doc/Data						- 11									
Equip/Tooling															
Operator							!			-					
Material															
Setup										:	!				
Other		1					1								

Landing	Gear	General						_
	Bending	Bend		Grain	Г	Ovalized		Pressure/Forced
	Centre Not Concentric to O/S	BOM/Route		Hardware		Over/Under tolerance		Temperature/Cure
	Cracks	Broken/Damaged		Inspection Incomplete		Part Incorrect		Weld
	Crushed/Crimped.	Burrs		Instructions Incomplete/Unclear		Part Lost/Missing		Wrong Stock Pulled
	Cuffs	Contamination		Maintenance		Part Moved		-
	Heat Treat	Countersink		Mislabeled		Positioned Wrong		
	Inspection Strip in Tube	Cut Too Short		Misread		Power Loss/Surge	\prod	Other
	Ripples in Bend	Drill Holes		Offset		-		
	Torque Waves in Extrusion	Drawing		Out of Calibration				
	Turning Sequence	Finish	Г	Out of Sequence				
Γ	Wave/Twist in Tube	Folio	Г	Outside Dimensions				

FAULT CATEGORY

Process
Supplier
Training
Unapproved

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

October-07-13 9:06:40 AM

Item ID: Revision ID: Item Name:	D3016-041 Seat Frame A	ssembly	or (0 == 1 1 <u>1) Len</u>	Accept	*N900	040	100)* s	etup Start Stop	171	S1* S2*
Start Date: Required Date: Reference:	10/07/13 10/07/13	Start Qty: 1.00 Req'd Qty: 1.00	*1* *1*		Cust Item I Customer:	D:					
Approvals:		an:				ate:	-	R	tun Start Stop	" 	R1* R2*
Sequence ID/ Work Center II 120 *1 2 \cdot \tau \tau \cdot \tau \tau \cdot \tau \tau \tau \tau \tau \tau \tau \ta	D	Operation Description QC5- Inspect part comp Memo	leteness to step on W/O	Set Up/ Run Hours 0.00	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp DAS 9 9-89
*130 *130* Powdercoat Powder Coating		START TIN	_ 1	0.00				1	_13	11-22	CF/BL
140 *140* QC Quality Control		QC3- Inspect Part Finis Memo	h	0.00							13/11/25°

									DQA:	Date:	
NCR: Y	es / No				WORK ORDER NON-C	CONFOR	MANCE / UP	DATE	QA Closed:	Date:	
N4 1 - O 1 -					DISPOSITION			AGAINST DE			
Work Orde Part N NCR N	No				Rework Scrap Use-as-is Work Order Update	Ther	Skid-tube Machining moforming Large Fab	Crosstube Small Fab Finishing Composite	l	Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other
Root				Descri	ption of work order update	Initial	Ad	ction	Sign &		
Cause	Date	Step	Qty	(or Non-conformance	Chief En	Desc.	cription	Date	Verification	QC Inspector
Doc/Data											
Equip/Tooling											
Operator											
Material											
Setup						l					
Other ·											
Process											
Supplier		1									
Training											
Unapproved											
					F	AULT CAT	EGORY				
Landi	ng Gear				General			<u></u>	-		
	Bending	5			Bend	Grain			Ovalized		Pressure/Forced
	Centre I	Not Conce	ntric to	o/s	BOM/Route	Hardw	are		Over/Under	tolerance	Temperature/Cure
	Cracks				Broken/Damaged	Inspec	tion Incomplete		Part Incorre	ct	Weld
	Crushed	I/Crimped	-		Burrs	Instru	ctions Incomplete	/Unclear	Part Lost/M	issing	Wrong Stock Pulled
	Cuffs				Contamination	Main	enance		Part Moved		
	Heat Tr	eat		. [_	Countersink	Mislat	eled		Positioned \	Wrong	
	Inspecti	on Strip in	Tube		Cut Too Short	Misre	ad		Power Loss/	/Surge	Other
	Ripples	in Bend			Drill Holes	Offset			_	_	

Out of Calibration

Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

Torque Waves in Extrusion

Drawing

Finish

Work Order	ID	108019
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Page 3 October-07-13 9:06:40 AM Accept *N900040100* D3016-041 Setup Start Item ID: **Revision ID:** Stop Seat Frame Assembly **Item Name:** Start Qty: 1.00 **Start Date:** 10/07/13 **Cust Item ID:** Required Date: 10/07/13 **Req'd Qty:** 1.00 **Customer:** Reference: Run Date: Process Plan: Tooling: Date: Approvals: Stop SPC (Y/N): Date: QC: Date: Reject Reject Set Up/ **Tool ID** Tool # Plan Sequence ID/ Operation Accept Insp. 36 Qty Qty Number Stamp Description Code **Work Center ID Run Hours** 9-89 Identify as per dwg & Stock Location ____ 0.00 150 *150* 0.00 Packaging Memo Packaging QC21- Final Inspection - Work Order Release 0.00 160 *160*

QC Quality Control

Memo

0.00

										DQA:	Date:	
NCR: \	⁄es	/ No				WORK ORDER NON-C	CONFORM	MANCE / UP		QA Closed:	Date:	
							- 1			QA Closed.	Date.	
Work Orde	· ·				-	DISPOSITION			AGAINST DE	PARTMENT	PROCESS	
Part N	-					Rework Scrap]	Skid-tube Machining	Crosstube Small Fab		Water Jet d. Eng. Coor.	Engineering Quality
NCR N	No.					Use-as-is Work Order Update	ł I	noforming Large Fab	Finishing Composite	Rec/Stor	re/Packaging Supplier	Other
Root					Descri	ption of work order update	Initial	Ac	tion	Sign &		
Cause	l	Date	Step	Qty	C	or Non-conformance	Chief Eng	Desc	ription	Date	Verification	QC Inspector
Doc/Data Equip/Tooling Operator Material Setup Other Process Supplier Training Unapproved										·		
Oliappioved	ــــا		<u> </u>	I	L	<u> </u>	AULT CATE	GORY			·	
Landi	ng G	iear				General						
		Bending Centre No Cracks Crushed/O Cuffs Heat Trea Inspection	Crimped. t		O/S	Bend BOM/Route Broken/Damaged Burrs Contamination Countersink Cut Too Short	\vdash	ion Incomplete ions Incomplete/ enance eled	'Unclear	Ovalized Over/Under Part Incorre Part Lost/M Part Moved Positioned \ Power Loss/	ct sissing Vrong	Pressure/Forced Temperature/Cure Weld Wrong Stock Pulled Other
	Ripples in Bend					Drill Holes	Offset					

Out of Calibration

Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

Torque Waves in Extrusion

Drawing

Finish

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Picklist Print

October-07-13 9:06:39 AM

Work Order ID:

108019

Parent Item:

D3016-041

Parent Item Name:

Seat Frame Assembly

Start Date: 10/07/13

Required Date: 10/07/13

Start Qty: 1.00

Required Qty: 1.00

Parent Item Name: Seat Frame Assemb	лу						512	iit Qty. 1.00		Required	Qij. 1.00	
1.	ew issueECIPP Rev											
Component Item ID/ Replacement Item Name Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M4130NT0.750W.049	Purchased	No			100	f	132.7322	4.3	5 67	13-11-		
4130 RD Tube .750 x.049W								. 4 2000,0000,71 5		_1,511	<u> </u>	
			Location		Loc Qty	L	oc Code					
			MAT033		132.7321893							
•	M127/11	× 20,	1233		2.1217893				 ·			
		416	1 1232		16.8164 113.794							
M4130NT0.500W.049	Purchased	No	1201		100	f	46.3860	4.3	-5		_	
4130 RD Tube .500 x.049W	Turchased								a_	13-11-	<u>S</u>	
			Location		Loc Oty	<u>L</u>	oc Code		•			
			MAT032		46.386			<u></u>				
			1210	025	1.82			·	, , , ,			
			123		24.856		50"		7.16'			
K.			1242	293	19.71	C.	22.4925			•		
M4130NT1.000W.120	Purchased	No			100	f	33.4825	1.5	$\mathcal{E}(x^2)$	13-11-	-5-	
4130 RD Tube 1.00 x .120wall						•				Anna Tanan F		·
	_		<u>Location</u>		Loc Qty	<u>L</u>	oc Code					
11) 1	1500 M	PRP	MAT033	202	33.4825 9.71	•	•		<u>`</u>	•		
Not in system		/	$\frac{1}{2}$	293 26545	23.7725							
D3016-17	Manufactured	No			100	Each	36.0000	2	2			
Gusset	Manaractarea	•							- D	13-11-20	<u> </u>	
			Location		Loc Qty	<u>L</u>	oc Code					
		•	WA		36							
			106	749	3,6				2			
D3016-13	Manufactured	No			100	Each	11.0000	2	A 2	ra //- 7.4	·/	
Bracket									a /	<u> 3-11-20</u>		.'
			Location		Loc Qty	<u>I</u>	oc Code			•		
v. v			WA001		- 11							
			100	818	11			·	2			

						•					DQA:	Date:	
NCR:	Yes	/ No				WORK ORDER NON-C	O	NFORM	MANCE / UPDA	TE .	•		
	٠										QA Closed:	Date:	
Work Ord	er.					DISPOSITION				AGAINST DEF	PARTMENT	PROCESS	
Part I	Part No. NCR No. Root Des					Rework Scrap Use-as-is Work Order Update	Skid-tube Crosstube Machining Small Fab Thermoforming Finishing Large Fab Composite				Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other	
Root					Descri	ption of work order update	ı	nitial	Action	1	Sign &		
Cause		Date	Step	Qty	,	or Non-conformance	Ch	ief Eng	Descript	ion	Date	Verification	QC Inspector
Doc/Data	Ш												
Equip/Tooling									•				
Operator													<u>.</u>
Material													·
Setup											!		
Other					-								
Process				ľ									
Supplier													
Training													
Unapproved													
						F.	AUL	T CATE	GORY				
Landi	ng (Gear				General		_					_
		Bending				Bend		Grain			Ovalized		Pressure/Forced
		Centre No	ot Concer	ntric to	O/S	BOM/Route		Hardwa	re		Over/Under	tolerance	Temperature/Cure
		Cracks				Broken/Damaged		Inspect	on Incomplete		Part Incorre	ct	Weld
		Crushed/0	Crimped.			Burrs		Instruct	ions Incomplete/Unc	lear	 Part Lost/Mi	ssing	Wrong Stock Pulled
		Cuffs				Contamination		Mainte	nance		Part Moved	<u> </u>	•
		Heat Trea	it			Countersink	Mislabeled				Positioned V	Vrong	

Misread

Out of Calibration

Out of Sequence

Outside Dimensions

Offset

Power Loss/Surge

Other

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Inspection Strip in Tube

Torque Waves in Extrusion

Cut Too Short

Drill Holes

Drawing

Finish

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October-07-13 9:06:40 AM

Work Order ID:

108019

Parent Item:

D3016-041

Parent Item Name:

Seat Frame Assembly

D3016-15

Manufactured

No

No

Start Date: 10/07/13

Required Date: 10/07/13

Start Qty: 1.00

Required Qty: 1.00

Gusset

Not in system The

D3020-1 Fitting

Manufactured

Location WA001

95695

Loc Qty

100

100

Each

Each

27.0000

1.0000

Loc Code

Loc Code

Location WA

											DQA:	Date	:
NCR:	Yes	/ No				WORK ORDER NON-O	COI	NFORM	NANCE / UPDA	TE			
		_						y-11-11-11-11-11-11-11-11-11-11-11-11-11			QA Closed:	Date	•
Work Orde	er.					DISPOSITION				AGAINST DEI	PARTMENT	PROCESS	
Part f	- . No.					Rework Skid-tube Crosstube Machining Small Fab Thermoforming Finishing Work Order Update Large Fab Composite				Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other		
Root					Descri	ption of work order update		Initial	Action		Sign &		
Cause		Date	Step	Qty	(or Non-conformance	Ch	nief Eng	Descripti	on	Date	Verification	QC Inspector
Doc/Data Equip/Tooling Operator Material Setup Other Process Supplier Training Unapproved								TCATE	CONY				
							AUL	T CATE	GORY				· · · · · · · · · · · · · · · · · · ·
Landi		Bending Centre No Cracks Crushed/ Cuffs Heat Trea Inspectio	Crimped. It n Strip in		o/s	General Bend BOM/Route Broken/Damaged Burrs Contamination Countersink Cut Too Short		Instruct Mainte Mislabe Misread	on Incomplete ions Incomplete/Uncl nance led		Ovalized Over/Under Part Incorred Part Lost/M Part Moved Positioned V	ct issing Vrong	Pressure/Forced Temperature/Cure Weld Wrong Stock Pulled Other
1		Ripples in	es in Bend Drill Holes					Offset					

Out of Calibration

Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

Torque Waves in Extrusion

Drawing

Finish

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DESIG	'up	DRAWN BY	DART AEROSPACE HAWKESBURY, ONTARIO, CANA	
CHECK	KED ,	APPROVED	DRAWING NO.	REV. A
	4	#	D3016	SHEET 1 OF 3
DATE			TITLE	SCALE
01.0	05.18		SEAT FRAME ASSEMBLY	NTS
Α		01.05.18	NEW ISSUE	

QTY	PART NUMBER	DESCRIPTION	MATERIAL
Х	D3016-041	SEAT FRAME ASSEMBLY	N/A
1	D3016-1	TUBE	AISI 4130N TUBE, Ø0.75 DIA x 0.049 WALL (M4130N-T0750W049)
2	D3016-3	TUBE	AISI 4130N TUBE, Ø0.75 DIA x 0.049 WALL (M4130N-T0750W049)
1	D3016-5	TUBE	AISI 4130N TUBE, Ø0.50 DIA x 0.049 WALL (M4130N-T0500W049)
2	D3016-7	TUBE	AISI 4130N TUBE, Ø0.50 DIA x 0.049 WALL (M4130N-T0500W049)
1	D3016-9	SADDLE	AISI 4130N TUBE, Ø1.00 DIA x 0.120 WALL (M4130N-T1000W120)
1	D3016-11	SADDLE	AISI 4130N TUBE, Ø1.00 DIA x 0.120 WALL (M4130N-T1000W120)
1	D3016-13	BRACKET	AISI 4130N SHEET, 18 GAUGE (M4130N-S049)
1	D3016-15	GUSSET	AISI 4130N SHEET, 18 GAUGE (M4130N-S049)
1	D3016-17	GUSSET	AISI 4130N SHEET, 18 GAUGE (M4130N-S049)
2	D3020-1	FITTING	N/A

NOTES

- 1) WELD PER DART QSI 004
- 2) ON SHEET METAL PARTS, BREAK ALL UNMARKED CORNERS 0.020-0.040
- 3) FINISH: POWDER COAT GREY SANDTEX (REF. 4.3.5.6) PER DART QSI 005 4.3
- 4) ALL DIMENSIONS ARE IN INCHES
- 5) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED

DEO ATTACHED



			DQA:	Date:	
NCR:	Yes /	NO WORK ORDER NON-CONFORMANCE / UPDATE			

					H-11 - H-11				QA Closed:	Date	e:			
Work Order:					DISPOSITION		AGAINST DEPARTMENT/PROCESS							
					Rework Scrap Use-as-is Work Order Update	Machining Small Thermoforming Finis		Crosstube Small Fab Finishing Composite	Prod. Eng. Coor. ing Rec/Store/Packaging		Engineering Quality Other			
Root				Descri	ption of work order update	Initia	<i>A</i>	Action	Sign &					
Cause	Date	Step	Qty		or Non-conformance	Chief E	i	scription	. Date	Verification	QC Inspector			
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Equip/Tooling														
Operator						İ								
Material [ĺ								1				
Setup		ļ												
Other														
Process														
Supplier						:	·			•				
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Unapproved														
						AULT CA	TEGORY							
Landir				_	General				7	г	-			
	Centre Not Concentric to O/S				Bend	Grai		_	Ovalized	-	Pressure/Forced			
					BOM/Route	 	ware	<u> </u>	Over/Under	<u>-</u>	Temperature/Cure			
				<u> </u>	Broken/Damaged	—	Inspection Incomplete		Part Incorre	 -	Weld			
		Crimped			Burrs		uctions Incomplet	e/Unclear	Part Lost/M	issing [Wrong Stock Pulled			
	Heat Treat				Contamination	├ ─	Maintenance		Part Moved	• •				
					Countersink		abeled	-	Positioned V		7 ₀₄₅₋			
			lube		Cut Too Short	$\boldsymbol{\vdash}$	Misread		Power Loss/	ourge [Other			
	— ``		F	_	Drill Holes	Offs								
				` -	Drawing	-	of Calibration							
Operator Material Setup Other Process Supplier Training Unapproved Landing Gear Bending Centre Not Concentric to O/S Cracks Crushed/Crimped Cuffs			 	Finish	_	of Sequence								
1	Wave/Tv	vist in Tul	pe		Folio	Outs	ide Dimensions							

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										DQA:	Date	:			
NCR: Y	es / No			,	WORK ORDER NON-C	ON	IFORM	MANCE / UP	DATE		_				
										QA Closed:	Date	•			
Work Orde	ar.				DISPOSITION		AGAINST DEPARTMENT/PROCESS								
Part N					Rework Skid-tube Crosstube Scrap Machining Small Fab				Small Fab		Water Jet d. Eng. Coor.	Engineering Quality			
NCR N	No				Use-as-is Thermoforming Finishing Work Order Update Large Fab Composite			Rec/Sto	re/Packaging Supplier	Other					
Root				Descri	ption of work order update	lr	nitial	Act	tion	Sign &					
Cause	Date	Step	Qty	(or Non-conformance	Chi	hief Eng Description		ription	Date Verification		QC Inspector			
Doc/Data															
Equip/Tooling															
Operator															
Material															
Setup															
Other						1									
Process	\sqcup \sqcup \sqcup														
Supplier															
Training															
Unapproved			<u> </u>	<u> </u>						1		1			
						AUL	T CATE	GORY							
Landi				_	General					1	_	٦			
					Bend	-	Grain			Ovalized		Pressure/Forced			
	$oldsymbol{arphi}$	lot Conce	ntric to	0/5	BOM/Route	\vdash	Hardware			Over/Under		Temperature/Cure			
	}}	16 :		-	Broken/Damaged	-	Inspection Incomplete			Part incorre	j	Weld			
		/Crimpea			Burrs	-	Instructions Incomplete/Unclear			Part Lost/M	ssing [_	Wrong Stock Pulled			
		at		-	Countarial	\mathbf{H}	Maintenance			Part Moved	Vrong				
	\vdash		Tuba	<u> </u>	Countersink	-	Mislabeled			Positioned V		Joshan			
	Landing Gear Bending Centre Not Concentric to O/S Cracks Crushed/Crimped Cuffs Heat Treat Inspection Strip in Tube Ripples in Bend Torque Wayes in Extrusion			\vdash	Cut Too Short Drill Holes	\vdash	Misread Offset	ı		Power Loss/	ourge	Other			
	Cause Date Step Qty oc/Data quip/Tooling perator laterial etup ther rocess qupplier raining napproved Landing Gear Bending Centre Not Concentric to O/S Cracks Crushed/Crimped Cuffs Heat Treat Inspection Strip in Tube Ripples in Bend		_ ⊢	Drawing	Н		Calibration								
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Out of Sequence

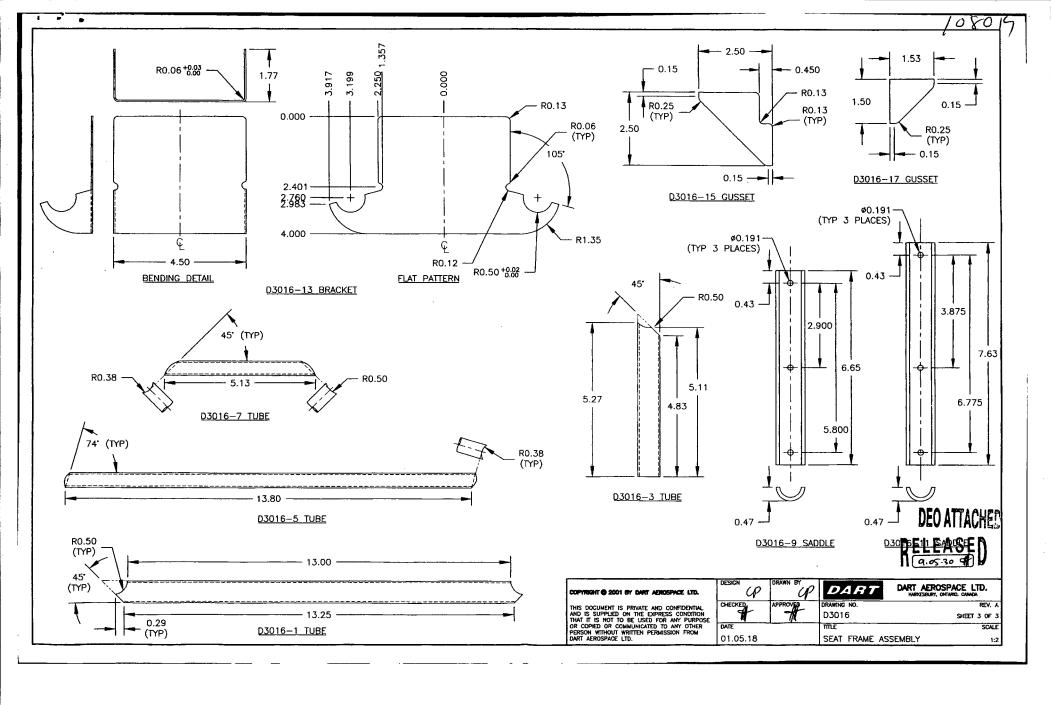
Outside Dimensions

Turning Sequence

Wave/Twist in Tube

Finish

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G



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108019

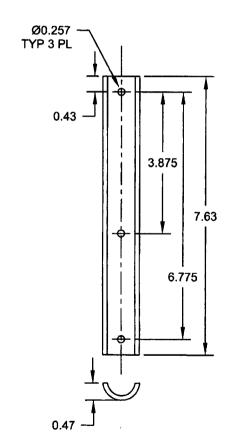
DRAWING I	NO. TITI	LE			REV. A	DART AE	ROSPACE LTD	D.E.O. N	Ю.	SHEET	NO.	SCALE
D3016	SE	AT FRAME	ASSEME	BLY		ENGINE	ERING ORDER	D3016	-A-1	SHEET	1 OF 1	NTS
DRAWN	1	CH	HECKED	U	7	MFG. APPR.	R	APPROVED	W	DE APPR.	#	
DATE	10.01.29	D/	ATE	10.0	11.75	DATE	10,01.29	DATE	10.01.29	DATE 1	0.01-29	

PURPOSE: TO REVISE D3016-11 SADDLE'S HOLE SIZES

CHANGE:

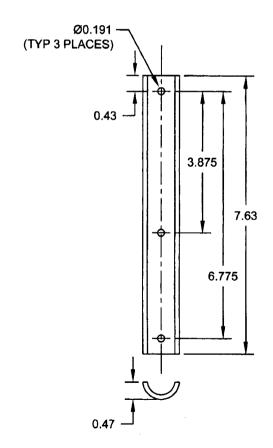
DETAIL D3016-11 SADDLE (SHEET 3): Ø0.257 TYP 3 PL WAS Ø0.191 (TYP 3 PLACES) AS SHOWN:

· IS:



D3016-11 SADDLE

WAS:



D3016-11 SADDLE

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